Response to U.S. EPA's March 4, 1997 Comments Regarding the January 1997 Predesign Investigation Technical Memorandum for the Blackwell Forest Preserve Landfill in DuPage County, Illinois

The U.S. EPA's March 4, 1997 comments regarding the January 1997 Predesign Investigation Technical Memorandum and Montgomery Watson's responses are provided below. A copy of the March 4, 1997 U.S. EPA letter is also attached.

1. Page 3, Paragraph 1 - The first sentence implies that borings TB67, TB68, TB69 and TB70 were all extended to a depth of 15 feet. This is inconsistent with the boring logs that show only TB70 extended to a depth of at least 15 feet.

   This paragraph is not necessary in the Predesign Report, and has been deleted.

2. Comparing the boring logs and the new estimated limits of refuse in Drawing D1, the location of the line appears inconsistently applied. For example, in some areas the line passes directly through the outermost soil boring showing no municipal waste (i.e., TB27) and directly through another boring that shows municipal waste present (i.e., TB65). The decision rule for inference of the estimated limits should be appropriately defined and consistently applied.

   The definition of the lateral limits of waste at any borehole transect has been expanded to extend outward to the first boring that did not encounter waste.

3. A major component of this field work was work was to determine where the cover has less than 2 feet of low permeability cover (i.e., clays) over refuse. Drawing D2 shows only two distinct locations where it is estimated that low permeability cover materials are thinner than 2 feet above the refuse. Supporting text on page 4, paragraph 1, indicates that the landfill cap materials present are comprised of silty clay (USGS classification CL) with some clayey silt (USGS classification ML), which are considered suitable for use in capping. This conclusion is presumably based on the permeability testing that was conducted and appears justifiable. However, the boring logs at several locations do not identify silty clays and clayey silts, but sands and gravels as being present above the refuse. Although the exact permeabilities of the mixed sands and gravels in these borings is unknown, it is certainly possible that they may not be classified as "low permeability materials." Therefore, based on the soil descriptions in the boring logs and a lack of sand and gravel permeability data, a number of borings do not appear to have 2 feet of low permeability materials present. Specifically, in boring TB25, there is no soil logging presented, so it is unclear if sufficient low permeability materials are present. Also, based on descriptions in the soil loggings, there does not appear to be 2 feet of low permeability soils above the refuse in borings TB26, TB28, TB35, TB45, TB47, TB58, TB62, and TB83. Additional justification should be provided or additional work should be conducted to evaluate these permeabilities. (Note: it appears that the additional work contemplated in Drawing D3 will not answer these questions.)

Based upon this comment, we expanded the Phase II investigation to re-drill at borehole locations TB25 and TB58. The borings results indicates that greater than 2 feet of clay soil exists at these locations, and we have modified the Report accordingly.

As well, we have reviewed the boring information at borehole locations TB26, TB28, TB35, TB45, TB47, TB62 and TB83. We agree with the Agencies that 2 feet of suitable cover do not exist at these locations, and have modified the Report accordingly.

4. There does not appear to be enough information to estimate the lateral extent of refuse on Drawing D1 near TB41 based on the available borings. According to the boring log, municipal waste was encountered at 4 feet at TB41. The extrapolated extent of refuse on Drawing D1 is located just east of TB41 but there are no borings east of TB41. For this reason, it appears that we do not presently know the extent of the refuse east of TB41 and, therefore, have no conclusive basis for placing the line on D1 east of TB41.

   Based upon this comment, we expanded the Phase II investigation to drill further out from borehole TB41 in order to specifically define the edge of waste. The additional information gathered has been incorporated into the Report.

5. Borings TB64 and TB73 extend to a depth of 13 and 24 feet, respectively, before refuse is encountered. These locations are then included within the extrapolated extent of refuse because refuse is determined to be present. The problem here is that many borings were stopped at 8 feet, so it is unclear if refuse is present deeper and whether those locations should also be included inside the extrapolated extent of refuse. This may be a moot point with regard to whether sufficient low permeability soils are present because of the depth and type of cover material, but it appears to undermine the objective of finding the true extent of waste.

   Based upon their knowledge of historic landfill operations, the Forest Preserve District (FPD) of DuPage County informed us of the general depths to waste over the landfill. During Phase I, we used this information to extend borings deeper than the 8 feet specified in the Predesign Work Plan. This explains why some boring transects extended to deeper depths than others.

   However, upon review of Phase I data we found that, at some borehole transects, we did not specifically identify waste on the inside of the interpreted waste limits, or did not specifically drill deep enough on the outside of the interpreted waste limits to positively state that waste was, or was not, present. Therefore, we expanded the Phase II investigation to drill deeper at borehole locations TB58, TB63 and TB68. Based upon the additional drilling information, we were able to better define the limits of waste in these areas, and these findings are included in the Report.

6. Why are borings TB69 and TB70 contained within the estimated footprint of the refuse in Drawing D1 when no waste was detected?

   Even though we did not encounter waste at these locations, we have conservatively included TB69 and TB70 within the limits of waste based upon FPD's historic knowledge of landfill operations.

7. Why is boring location TB74 outside of the extrapolated extent when refuse was detected at 21 feet (conversely, TB75 is located directly adjacent to TB74, waste was detected at 24 feet, and TB 75 is located inside the footprint)?

   Based upon this comment, we expanded the Phase II investigation to drill further out from borehole TB74 in order to specifically define the edge of waste. The additional information gathered has been incorporated into the Predesign Report.

8. The boring log for TB 81 is confusing. Was waste detected at 9 to 9.5 feet, and if so, how could the boring end at 9.0?

   We have modified the boring log.

9. With regard to the groundwater monitoring program, it is my understanding that all of the wells identified as either detection or compliance will be sampled for all volatile organic compounds on the Target Compound List (TCL) on a quarterly basis, and all semivolatile organic compounds on the TCL and full Target Analyte List (TAL) on an annual basis, consistent with the AOC Statement of Work.

   No response necessary.

10. Wells G130S and G118S, should be added to the initial list of shallow detection wells that will be sampled in the glacial outwash aquifer. These additions will provide better coverage on the northwest side of the landfill.

    Due to groundwater flow direction on the west side of the landfill, conversion of G130S and G118S from Water Level Wells to Detection Wells will not provide better coverage. As shown in Figure 4-15 of the Final Remedial Investigation Report (Warzyn, 1994) (a copy is attached to this letter), groundwater flow in the upper aquifer on the west side of the landfill is towards the south. Any contamination at G130S and G118S will be detected at G129 or G123, which are already proposed Detection wells. Therefore, we do not suggest making these changes, and no changes have been made in the Predesign Report.

11. Also, there is currently a disproportionately large gap in deep detection coverage between wells G-128D and G-135, over 1,000 feet (there is an equally large gap in deep compliance monitoring in the same area, so no downgradient protection is present). This gap needs to be addressed.

The comment will be discussed during a meeting between the U.S. EPA, IEPA, FPD and Montgomery Watson.

12. Wells G-131D and P-3 should be added for more thorough deep well compliance coverage.

G131D is a proposed Water Level Well, and there is some technical merit in converting it to a Deep Compliance Well. The Predesign Report has be revised accordingly.

P-3 is a shallow piezometer, and is a proposed Shallow Aquifer Water Level Well. As well, based upon shallow groundwater flow pathways, the P-3 location is not downgradient of the landfill. As such, it is not suitable as a deep compliance well. No changes have been made in the Predesign Report.

13. Also, a total of two shallow compliance wells covering over 3,000 liner [SIC] feet of outwash aquifer is insufficient initial shallow compliance coverage. Shallow compliance wells are necessary in the general area of G-138, P-3 and G-139 to form well clusters (shallow wells G-133S and G-122 are arguably close enough to be paired with G-133D and G-131D, respectively).

Due to groundwater flow direction on the west side of the landfill, existing Compliance Wells G122 and G133S are optimally located. As shown in Figure 4-15 of the Final Remedial Investigation Report (Warzyn, 1994) (a copy is attached to this letter), groundwater flow in the upper aquifer on the west side of the landfill is towards the south. If groundwater impacts are detected on the west side of the landfill, Compliance Wells G122 and G133S are ideally located, and additional compliance wells would not be necessary. Therefore, no changes have been made in the Predesign Report.

14. If upon completion of 8 rounds of sampling contaminant concentrations throughout the system of groundwater monitoring wells are not increasing, the Forest Preserve District may petition to allow monitoring on a less frequent basis.

No response necessary.

15. Finally, according to Section 2, Page 3, of the design work plan, one of the objectives of the predesign investigation is to "assess impacts of remedial activities on the site." Based on the predesign investigation activities performed to date, and the additional activities recommended by Montgomery Watson, it is unclear how this objective will be met. The revised Technical Memorandum or future design submittals should clearly explain how this objective was or will be met.

The Predesign Report has been modified to provide this information.

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